

USMC H-1 UPGRADES



Navy ACAT ID Program

Total Number of Systems:	1,060
Total Program Cost (TY\$):	\$7281M
Average Unit Cost (TY\$):	\$6M
Full-rate production:	2QFY04

Prime Contractor

Bell Helicopter Textron

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

This program combines upgrades of two USMC H-1 aircraft: the AH-1W Cobra attack helicopter and the UH-1N light utility helicopter. The common element of the two will be identical twin engines and drive trains, including a new four-bladed rotor previously developed but not fielded. In addition, the AH-1 attack helicopter will gain a new integrated cockpit and night targeting system. The upgrade will extend the life of the two H-1 models well into the 21st century. The AH-1 will contribute to ***precision engagement*** and ***full-dimensional protection***; the UH-1 will provide support for ***focused logistics***.

The upgrade of the AH-1W, including the new cockpit, is referred to as the AH-1Z, and the upgrade of the UH-1N is referred to as the UH-1Y. Collectively, the AH-1Z/UH-1Y effort constitutes the USMC H-1 Upgrades Program.

BACKGROUND INFORMATION

The Marine Corps instituted the H-1 Upgrade program in 1996 by combining several lesser upgrades. Prior to entry into EMD in September 1996, DOT&E approved the program's alternative LFT&E plan and USD(A&T) approved a waiver from full-up, system-level LFT&E. The AH-1Z will be tested full-up, system-level; the UH-1Y received a waiver from full-up, system-level testing. The H-1 Upgrades Operational Requirements Documents require that both helicopters be tolerant to impacts by 12.7mm rounds and have crashworthy enhancements. Additionally, the drive components of the AH-1Z should be tolerant to 23mm rounds.

TEST & EVALUATION ACTIVITY

The only OT&E activity during the year was test planning. The approved TEMP calls for the T&E program to be conducted in three phases: (1) integrated contractor/government developmental testing called IT; (2) dedicated government developmental testing called DT; and (3) Operational Testing. Each aircraft model (AH-1Z and UH-1Y) will undergo its own individual OT and LFT test program. The distinction between government DT and IT has recently been removed, and the new IT/OT approach will be reflected in a revision to the TEMP now being prepared. LFT&E of components and full-scale test articles is being conducted during the course of EMD to complement IT and OT.

Currently, component level LFT&E is underway. Fuselage dry bay fire tests were completed in August 1997. Tests of the tail rotor driveshaft and bearings will occur this fall.

TEST & EVALUATION ASSESSMENT

An Integrated Test Team (ITT) consisting of government and contractor flight test engineers and pilots will conduct the IT phase. The contractor will demonstrate safety of flight of the EMD aircraft prior to participation of government personnel in flight testing. The program TEMP contains a credible, well-integrated T&E program that should resolve all critical technical and operational issues before production. Funding constraints arose during FY99 that now threaten to severely reduce the overall scope of testing. The program Test Integration Working Group, in which DOT&E participates, is actively seeking solutions to these constraints.

The H-1 Upgrade has the most comprehensive and realistic aircraft LFT&E program approved to date. The program will include full-up, system-level testing of an AH-1Z and testing of all but the tail, which is common to both aircraft of the UH-1Y. It will explore in detail various potential kill mechanisms related to the expected threat. The LFT&E program is fully integrated into the systems engineering effort and should yield a reasonable opportunity to incorporate improvements if deficiencies exist.